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AUTHOR Reynolds, Arthur J.; And Others
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ABSTRACT

This study of the school adjustment of minority at-risk children in Chicago's government-funded kindergarten programs encompassed both the social and economic backgrounds of the children studied. The programs are designed to serve children from poor, minority backgrounds. The goal of these language and basic skills programs is to improve children's cognitive and affective readiness for the primary grades. Standardized tests, teacher surveys, and questionnaire data from parents and children were used for the assessment. The impact of factors relevant to school practice is emphasized in this report. Preschool experience was found to have a significant influence on the cognitive readiness of children entering kindergarten and was one of the best predictors of cognitive readiness. School mobility affected achievement negatively, as did grade retention, while parent involvement was a positive influence. Findings also showed that motivation in kindergarten as rated by teachers had a significant positive influence on kindergarten and the first and second years. By the third year, children who perceived themselves to be committed to school did better in school. Policy implications are discussed. (SH)

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Longitudinal Study of Children at Risk

1985-90 Summary Report

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Ted D. Kimbrough
General Superintendent of Schools

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Department of Research, Evaluation and Planning
Bureau of Program Evaluation

LONGITUDINAL STUDY OF CHILDREN AT RISK
1985-90 SUMMARY REPORT

Prepared by
Arthur J. Reynolds and Nikolaus Bezruczko
with assistance from
Mavis Hagemann and Nancy Mavrogenes

TED D. KIMBROUGH
General Superintendent of Schools

CHICAGO PUBLIC SCHOOLS

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INTRODUCTION

The increasing prevalence of children at risk[1] of school failure in the past decade has raised new concerns over their school adjustment and success. Of particular concern among educators and administrators in large metropolitan school districts such as the Chicago Public Schools has been and continues to be improving the school success of urban minority children at risk due to the debilitating effects of poverty and economic hardship.

According to the Census Bureau, by the year 2020, the number of children living in poverty will increase 37%, leaving 5.4 million more children in poverty than in 1984.[2] A major portion of these children are concentrated in large metropolitan areas such as Chicago. As Comer (1988) indicated, "a disproportionate number of black [at-risk] children do not receive the experiences that will enable them to do well in school and have a reasonable chance to do well in life" (p. 82).[3]

In order to better understand the schooling needs of children at risk, a study of 1500 kindergarten children was begun in 1986 in the Department of Research and Evaluation. These children at risk enrolled in one of four early childhood intervention programs: (1) Chapter 1 Child-Parent Center (CPC), (2) Chapter 2 Child-Parent Center (CPC), (3) Chapter 2 Home-School (H-S), or (4) Chicago Effective Schools Project (CESP).

The purpose of this report is to describe the study and summarize its results and implications for schools and teachers. Because of its longitudinal design, the study provides a unique perspective for understanding the school adjustment of children at risk. Questions were asked concerning children's preschool experience, motivation to learn, the extent of involvement between parents and school, and other areas important to the future schooling of young children.

OBJECTIVES OF THE LONGITUDINAL STUDY

The scope of this study is broad, encompassing both the social and economic background of children and their school adjustment. Three goals have driven the study.

1. To describe the patterns of cognitive achievement and affective development over time and their association with both children's early school experiences and the broader context of children's social and economic background.

2. To identify general factors that influence, positively and negatively, school adjustment from kindergarten through the primary grades.

3. To identify aspects of the schooling process that can be altered to improve the schooling of children, and to understand when their influence on learning is the strongest.

ORGANIZATION OF THE LONGITUDINAL STUDY

Sample Selection

Approximately 1540 children (95% black, 5% Hispanic) enrolling in Chicago's government funded kindergarten programs in 1985-1986 constituted the sample. The sample included all children in Chapters 1 and 2 CPCs that have kindergarten, Chapter 2 H-S, and a random sample of 6 schools in the CESP. By definition, the sample is representative of children in government-funded early childhood programs; the sample thus represents children at risk in Chicago and probably other large cities.

Because these children are minority, come from predominately low-income neighborhoods, are eligible for government assistance (for example, educational program funding and lunch subsidies), and the vast majority live with a single parent who has not graduated from high school, they are at multiple risk of school failure.[4] Although entry into the CPCs required residency in an area eligible for ECIA Chapter 1 services and applicants were accepted on a most-in-need basis, the groups were similarly at risk for school problems. It should be noted that ability tests were not administered for admission to any of the programs. Seventy (70) percent of the sample had preschool (CPC or Head Start for CESP children) and 52% were girls.

Implementation of the Programs

Like many government-funded programs, the preschool and kindergarten programs examined in this study are specifically designed to serve children who come from poverty and minority backgrounds.[5] The goal of these language- and basic-skills programs is to improve children's cognitive and affective readiness for the primary grades. Each program provides teachers with teacher aides, support services, and inservice meetings conducted by the Bureau of Early Childhood Programs of the Chicago Public Schools. The four programs in this study are described below.

Chapter 1 CPC. All Child-Parent Centers in this study serve three, four, and five-year-olds. Half-day kindergarten is provided for those who had at least one year of CPC preschool. In addition to classroom staff, each CPC has a head teacher and a parent resource teacher. As long as their child is in the CPC, parental participation is required. Every CPC is part of a larger school unit, but almost all Chapter 1 CPCs are situated in buildings separate from the main school.

Chapter 2 CPC. This program is similar to the Chapter 1 CPC with two exceptions. Five of the six Chapter 2 centers are in wings of the school, not separate buildings. Also, the program receives extra funds from Chapter 2, which provide for all-day kindergarten, a teacher aide, additional supplies and equipment, and separate inservice sessions for teachers and aides.

Chapter 2 H-S. These children enter kindergarten in the same public school as the Chapter 2 CPC children, but they have no known history of preschool. Chapter 2 provides the same all-day kindergarten program, additional funds for a teacher aide, supplies and equipment, and inservice sessions as for the CPC. In all but one school, the classrooms for these children are near the CPC kindergarten classrooms and the teachers all work together under the CPC head teacher. Parents are welcome to participate in the CPC, but it is not a requirement.

Chicago Effective Schools Project. Unlike the other programs, only one quarter of the children in the Chicago Effective Schools Project have had preschool (Head Start). The program offers all-day kindergarten, a teacher aide for each class, and extra funds for inservice and materials. Parent participation is not required. A random sample of six schools was selected for the study.

Development and Administration of Instruments

The following table summarizes the data collected in the study to date.

Sources of Information in the Longitudinal Study of Children at Risk

	Kindergarten		Year 1	Year 2	Year 3	Year 4
	Fall 1985	Spring 1986	Spring 1987	Spring 1988	Spring 1989	Spring 1990
Source						
Standardized test scores	X	X	X	X	X	X
Teacher survey		X	X	X	X	X
Parent survey				X		X
Student survey					X	X

Standardized Test Scores. To assess both cognitive readiness and basic skills, children completed group-administered cognitive achievement tests (Iowa Tests of Basic Skills) each spring as part of the city-wide testing program. The readiness tests were administered upon entry in kindergarten in the fall of 1985 and again in the spring of 1986. Beginning in first-grade (spring 1987), reading and mathematics subtest scores were retained for analysis.[6]

Teachers. Teachers were surveyed every spring and rated children's school adjustment, motivation, and socioemotional maturity. Parent involvement at home and in school was also assessed.

Parents. Questionnaire data from parents was designed to gather information about children's home environment, frequency of school-related activities, and attitudes of parents and their children toward school success.

Children were also provided with space to write in comments about their reactions to school.

GENERAL FINDINGS

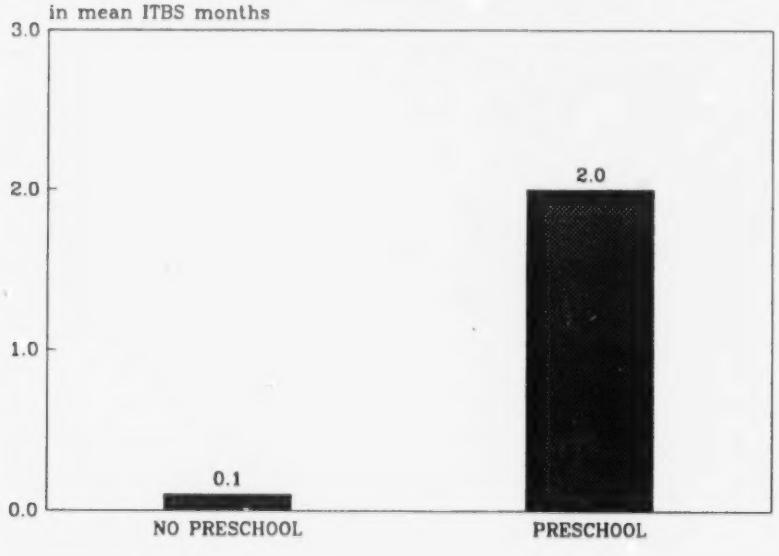
The analyses consisted of statistically analyzing the data above for the total sample as well as between groups. In this report, the impact of factors relevant to school practice are emphasized. These factors include preschool, school mobility, parent involvement, grade retention, and motivation. The impact of these factors has been verified by advanced data analysis techniques which are detailed in other papers.[7] The analyses are based on 1284 children who remained in the school system in 1989-1990.

Preschool

Preschool experience had a significant influence on entering kindergarten cognitive readiness (measured by ITBS composite battery) and is one of its best predictors. This result is illustrated in Figure 1. Children with preschool experience scored, on average, two months higher than children with no Chicago public school preschool experience.

Figure 1

Entering School Readiness



Although findings also showed that the influence of preschool faded considerably by year 3 (grade 3 for most children), it continued to affect year 3 achievement by influencing cognitive readiness, parent involvement, and teacher ratings of socioemotional maturity (see studies listed in endnote 7).

Figure 2 presents achievement results in reading from kindergarten through year 3 by program. Achievement is shown as the proportion of children performing at grade level or above in each year.

Three results are apparent:

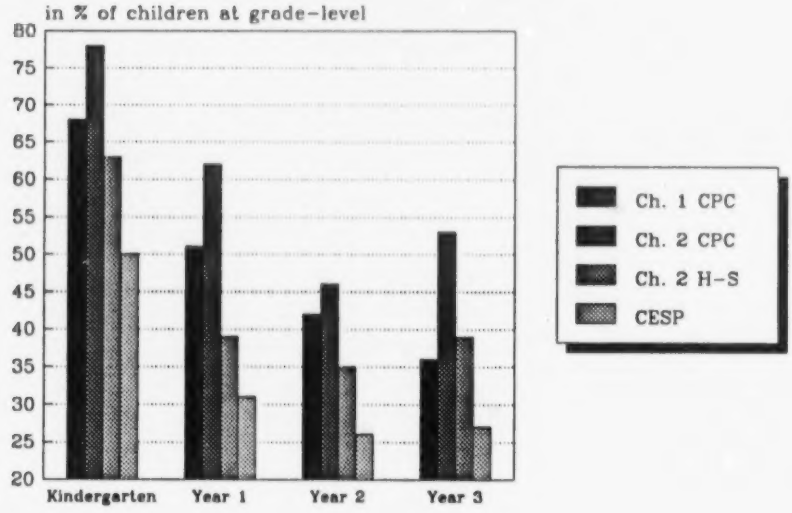
1. Among all groups there was a continual decrease in the proportion of children at grade level or above, except in year 3.

2. Chapter 2 CPC children (who had preschool) outperformed other children in all years. By year 3, the majority of Chapter 2 CPC children (53%) were performing at grade level or above, far above the children in other programs. CESP children had the lowest performance by far as only 27% were at grade level in year 3.

3. By year 3, Chapter 2 H-S children (who did not have preschool), surpassed Chapter 1 CPC children (who had preschool) in grade level performance (39% to 36%, respectively). This result indicates that direct benefits of preschool are not automatic, and may depend on other factors (for example, schooling experiences after preschool).

Figure 2

Reading Achievement
by Year



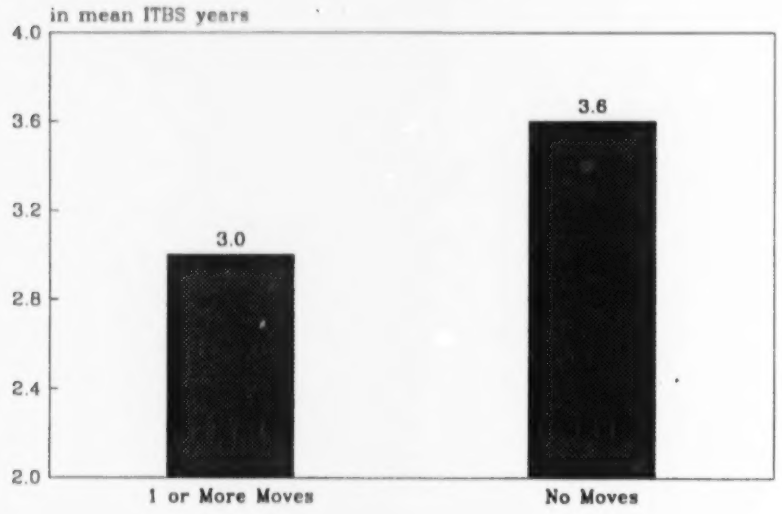
School Mobility

A result that emerged in year 1 was that children who changed schools after kindergarten (33% of sample) showed significantly lower achievement than children who stayed in the same school, irrespective of program. In fact, mobility's negative influence on achievement steadily increased in years 2 and 3.

Figure 3 shows that children who remained in their kindergarten school through year 3 scored six months higher on reading achievement than children who moved 1 or more times (mean score = 3.6 to 3.0 grade-equivalents, respectively). Indeed, over the first three years of school, 46% of all children changed school at least once, indicating high mobility in the sample. With such family and school instability, it is not surprising mobile children suffered academically. Chapter 2 CPC (35%) and Chapter 2 Home-School (39%) children changed schools less often than Chapter 1 CPC (49%) and CESP (48%) children.

Figure 3

Year 3 Reading Achievement
by Mobility



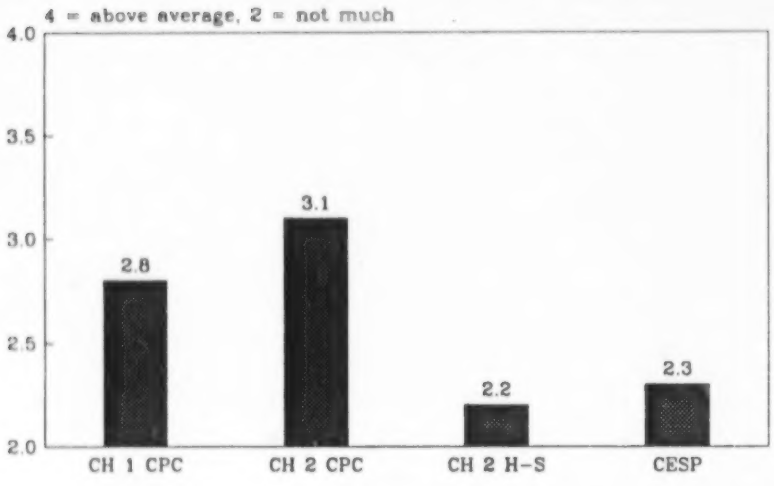
Certainly, changing schools represents underlying family instability associated with being poor and minority. That it significantly hinders school adjustment suggests that schools must do all they can to encourage a physically stable home environment and help prevent the negative effects associated with family instability.

Parent Involvement

One result suggesting the positive influence of CPC programs was teacher ratings of parent involvement after kindergarten when it was no longer required (as in preschool and kindergarten). As shown in Figure 4, year 1 teachers rated children from CPC programs significantly higher on parent involvement than other children. These differences remained over years 2 and 3 and were also consistent with parent reports of involvement in year 2.

Figure 4

Parent Involvement
in School
Year 1 Teacher Ratings

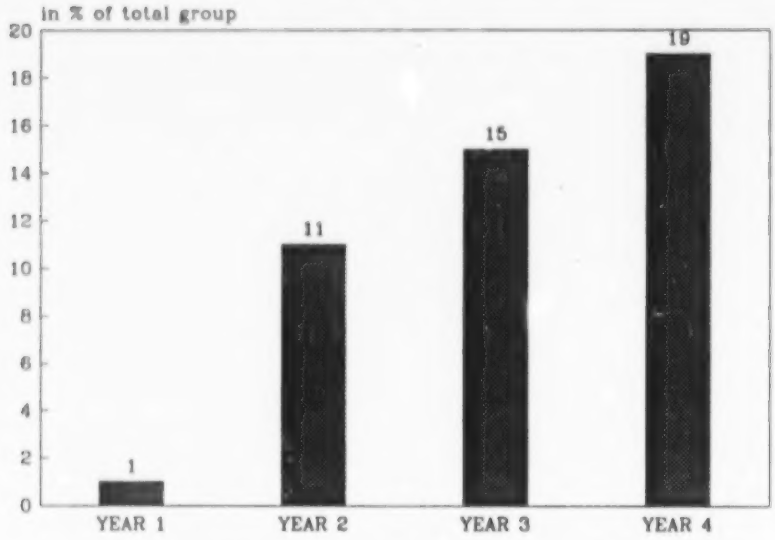


Analyses also revealed that parent involvement in school activities, at least as reported by teachers, positively influenced year 1 achievement, even after adjusting for the influence of other factors (sex, cognitive readiness, and motivation). Some of these activities may include helping in a child's classroom, attending parent meetings, and volunteering at school events. Although parent involvement does appear to enhance achievement, it is only one contributing factor in early school success.

Grade Retention

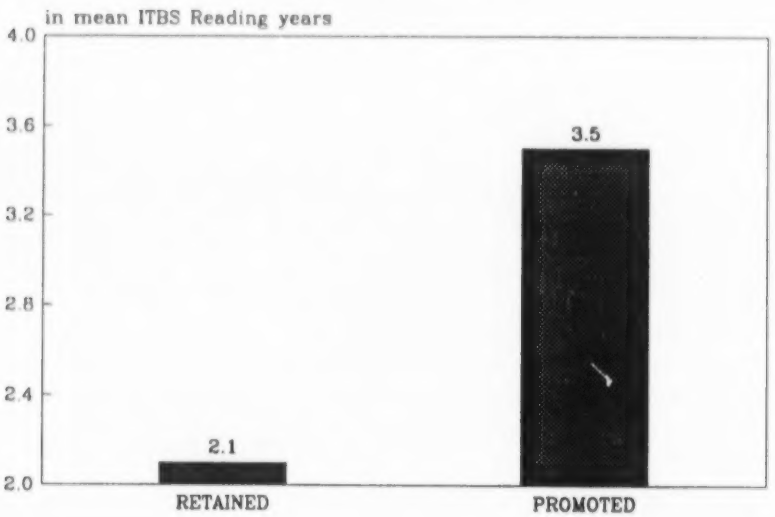
By year 4, school administrative decisions about children, especially grade retention, began to show high prevalence as well as substantial negative effects. As shown in Figure 5, the cumulative proportion of children retained at least once steadily increased from 1% in year 1 (or grade 1) to 19% in year 4 (or grade 4).

Figure 5
Retention Patterns



This unfortunate school practice adversely affected children in three ways. Being retained (1) reduced childrens' reading achievement in year 3, (2) helped neutralize the positive effects of preschool, and (3) reduced children's self-reported sense of commitment to school in year 3 (that is, trying hard, doing homework, answering questions in class).

Figure 6
Year 3 Achievement
by Retention



Year 3 achievement performance of children continuously promoted and ever-retained is displayed in Figure 6. Promoted children were three months below grade level performance (mean = 3.5 grade-equivalencies) and retained children were seven months below their expected performance (2.1 grade equivalencies). This resulted in a 1.4 year difference in achievement in favor of continuously promoted children. In fact, the significant achievement advantage of continuously promoted children remained even after adjusting for factors that predict retention (prior achievement and gender). These results indicate that retention reduces childrens' later achievement. Further note that Chapter 1 and 2 CPC children were less likely to be retained than other children.

Motivation

Two other notable findings concerned the influence of childrens' academic motivation and their perceived commitment to school. Motivation in kindergarten as rated by teachers had a significant positive influence on kindergarten and year 1 achievement and also continued to contribute to cognitive achievement in year 2. By year 3, children who perceived themselves to be committed to or integrated into school (for example, by trying hard and doing school work) did better in school. This result suggests the importance of building children's commitment to school in enhancing adjustment and achievement.

POLICY IMPLICATIONS

The results presented in this report highlight some of the factors that have direct implications for school practice. The above factors certainly contribute to school success in diverse ways. A major conclusion of this report, however, is that these factors in and of themselves are not enough to improve or even sustain children's academic performance--they must reinforce one another. The study is continuing to further detail the influences on school adjustment including achievement, socioemotional maturity, and grade retention. Present results support the following policy implications.

1. Preschool experience has complex effects, and plays a significant role in early school adjustment. Although many educators support preschool programs, their support is not often based on conclusive empirical findings. This study found that preschool contributed significantly to early school adjustment in complex ways that have not been apparent in previous studies. First, participation in CPC preschool programs had a significant positive effect on the amount of parent involvement in school activities. Because parent involvement positively affected year 3 achievement, preschool influenced year 3 achievement through its influence on parent involvement. That is, children who had both preschool and parents that were involved in school were more likely to be successful.

Second, preschool had a significant influence on entering school cognitive readiness, a major predictor of early school success. As with parent involvement, preschool influenced achievement in the first three years of school by influencing cognitive readiness.

Third, in addition to the greater achievement performance of Chapter 2 CPC children, Chapter 1 and 2 CPC children experienced less mobility and less retention than other children, both of which are predictors of later achievement. That Chapter 2 H-S children who did not have preschool outperformed Chapter 1 CPC children in achievement in year 3 suggests that positive effects of preschool on achievement over time are not automatic and, in some cases, may not yield results over and above those of quality all-day kindergarten programs. Additional analyses of achievement as well as non-cognitive outcomes may further clarify preschool effects.

However, in total, the findings of this study call for vigorous efforts to extend government-funded preschool programs to all eligible children, particularly, the Chapter 2 CPC program, which includes both preschool and all-day kindergarten. Preschool positively and significantly affects early school adjustment by affecting cognitive readiness skills, teacher ratings of socioemotional maturity, and parent involvement, all of which are linked to later achievement and grade retention.[8]

2. Intervention for children at risk should occur prior to or on entry to school. This recommendation relates to the time of intervention. We found that as children move through the primary grades, the opportunities for improving school success become less likely. Ideally, interventions that occur before formal schooling may provide the best hope for children at risk. This is borne out by the pervasive effects of entering cognitive readiness. It influenced (directly or indirectly) nearly all other factors in the schooling process and had one of the greatest effects on early school adjustment. This suggests that improving cognitive readiness on and before school entry may be a most effective means of improving childrens' potential as well as preventing later academic problems. This result further reinforces the importance of preschool and other early stimulation programs such as day-care as well as naturally occurring parent-child interactions.

3. Motivation training should be a focal point of early schooling. Much has been made of the importance of cognitive development in early schooling. However, we have found that academic motivation is a significant intervening link in early schooling that may help make achievement possible in the first place. These findings suggest that intervention programs should at least incorporate motivation and other affective characteristics as intended outcomes.

A second recommendation would be to institute motivation training programs for young children separately or in conjunction with regular instructional programs. One such program trained teachers to enhance motivation in low-income children.[9] The program stressed enabling children to believe that they can cause their own behavior (personal causation) and treating them as if they can. Results showed enhanced motivation and higher achievement relative to peers among children participating in the program. Continuing motivation is a critical source of learning not only for achievement but also for the formation of educational aspirations.

4. Grade retention has negative effects on early academic achievement and should be discouraged. The results of this study are consistent with many others: retaining children early in school has a negative effect on achievement, independent of other factors.[10] Also, retaining children appears to play a role in neutralizing the effects of preschool and children's commitment to school. Because more children are retained over time, the effects of retention

also increase over time. For these reasons, grade retention is not sound educational policy. As House (1989) noted in his review of retention research "almost everything points in the same direction - retention is an extremely harmful practice" (p. 210).[11] One practical alternative to retention is promotion with remediation, which may reduce the stigmatizing effects of retention that many children experience.

5. Parent involvement in school is an important link in early school success and should be fostered. Despite the logical appeal of parent involvement as a consistent and effective way to bolster school success, previous research does not support this conclusion. However, we found positive effects of parent involvement in two respects. First, it had significant direct and indirect effects on primary grade outcomes. Children whose parents were rated as being more involved in school had higher achievement and more positive ratings of maturity as rated by their teachers.

Second, and possibly more important, parent involvement enhanced the effects of preschool, academic motivation, and kindergarten achievement. This result is important in that parent involvement in school, when present, appears to be a condition that enhances early school success. Without it, the effects of other variables were reduced.

Comer (1988) provided evidence of the success parental involvement can have in improving the family-school relationship.[12] A comprehensive intervention was implemented in two low-achieving elementary schools over a 15-year period. The program stressed the development of academic, interpersonal, and social skills with the philosophy that "the key to academic achievement is to promote psychological development in students, which encourages bonding to the school" (p. 46). This attachment to the school was accomplished by developing positive interaction between parents and school staff, attending to interpersonal and social skills development, and developing a comprehensive school plan based on cooperative management among the principal, teachers, parents, and mental health professionals.

For example, social activities between families and school personnel were conducted, social skills training programs for children were instituted, parents were hired as classroom assistants, and "discovery" rooms for children who have lost interest in school were created. The program appeared to have an effect on achievement over time. It should be noted, however, that contact between families and schools by itself was not enough. It took time, a cooperative and comprehensive approach to school management, and a desire to align the interests of families and schools. The issue of the quality of parent involvement is also important to consider in implementing successful parent involvement programs. Moreover, additional research is needed to determine the specific types of parent involvement that are most effective.

6. School personnel and administrators should encourage school stability. The increasing negative effects that changing from school to school has on achievement is an important result of this study. That the effect increased from first to third year is of great concern. In making the transition to schooling, it appears that school stability is an important source of school success.

Home or school instability, whatever the reason, has harmful effects on student learning. The fact that mobile children were less motivated, less prepared to do well in school, and lived in poorer areas than other children indicates that school personnel need to do all they can to encourage and maintain a stable learning environment for children.

School practices that may minimize the impact of school mobility include (1) increased support services for children after they have moved such as orientation programs, home visitation, parent-teacher conferences, and the development of children's peer networks and (2) coordination of instructional programs among schools.

7. Approaches to improve the schooling of at-risk children must be multifaceted. The most striking result of the study so far is the truly complex, intertwined network of influences that exist in the early schooling process. Consequently, success for at-risk children is often dependent on the interaction of many variables working in concert (e.g., preschool and parent involvement, motivation and achievement, grade promotion and school stability). While early intervention is an important source of school readiness, it is clearly not enough; the positive effects of many variables must reinforce each other over time. Continuity in the early schooling process appears particularly critical in enhancing and maintaining effects. Parent involvement, school stability, grade promotion, and experiencing a sense of academic commitment to school signify this continuity.

ENDNOTES

1. In this report, at-risk is defined as the "impoverishing of the child's world so that the child lacks the basic social and psychological necessities of life" (Garbarino, 1982, p. 32); Garbarino, J. (1982). *Children & families in the social environment.* New York: Aldine.

2. Pallas, A. M., Natriello, G., & McDill, E. L. (1989). The changing nature of the disadvantaged population: Current dimensions and future trends. *Educational Researcher*, 18(5), 16-22.

3. Comer, J. P. (1988). Effective schools: Why they rarely exist for at-risk elementary-school and adolescent students. In *School success for students at risk* (pp. 72-88). Orlando, FA: Harcourt, Brace, Jovanovich, Publishers.

4. See Mincy, R. B., Sawhill, I. V., & Wolf, D. A. (1990). The underclass: Definition and measurement. *Science*, 248, 450-453; Natriello, G., McDill, E. L., & Pallas, A. M. (1990). *Schooling disadvantaged children: Racing against catastrophe.* New York: Teachers College Press.

5. For additional information, see Chicago Public Schools. (1986). *Chapter 2 all-day kindergarten program final evaluation report: Fiscal 1985.* Chicago: Department of Research and Evaluation (by Nancy Mavrogenes); Chicago Public Schools. (1987). *Chapter 2 all-day kindergarten program final evaluation report: Fiscal 1986.* Chicago: Department of Research and Evaluation (by Nancy Mavrogenes); Chicago Public Schools. (1988). *An evaluation of kindergarten interventions in the Chicago public schools: 1987.* Chicago: Department of Research and Evaluation (by Mavis Hagemann).

6. These test scores may be overestimated since they are based on 1977-1978 norms. A comparison of third-grade norm group scores between 1977-1978 and 1984 suggests the overestimation may be as high as three months in reading comprehension and two months in mathematics total.

7. See Reynolds, A. J. (1989). A structural model of first grade outcomes for an urban, low socioeconomic status, minority population. *Journal of Educational Psychology*, 81, 594-603; Reynolds, A. J. (1989). *Early schooling of children at risk.* Unpublished doctoral thesis, University of Illinois, Chicago; Reynolds, A. J. (1990, April). *Sources of fading effects of prekindergarten experience.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco; Reynolds, A. J. *Mediated effects of preschool experience.* Manuscript submitted for publication.

8. See also Lazar, I., Darlington, R. B., Murray, H. W., Snipper, A. S. (1982). Lasting effects of early education: A report from the consortium for longitudinal studies. *Monographs of the Society for Research in Child Development*, 47(2/3, Serial No. 195); Berrueta-Clement, J. R., Schweinhart, L. J., Barnett, W. S., Epstein, A. S., & Weikart, D. P. (1984). *Changed lives: The effects of the Perry Preschool Program on youths through age 19.* Ypsilanti, MI: High/Scope.

9. deCharms, R. (1984). Motivation enhancement in educational settings. In R. E. Ames & C. Ames (Eds.), *Research on motivation in education. Vol. 1: Student motivation* (pp. 275-310). Orlando, FA: Academic Press.

10. See a recent review of controlled studies by Holmes, C. T. (1989). Grade level retention effects: A meta-analysis of research studies. In L. A. Shepard and M. L. Smith (Eds.), *Flunking grades: Research and policies on retention* (pp. 16-33). New York: Falmer Press.

11. House, E. R. (1989). Policy implications of retention research. In L. A. Shepard & M. L. Smith (Eds.), *Flunking grades: Research and policies on retention.* Philadelphia: Falmer Press.

12. Comer, J. P. (1988). Educating poor minority children. *Scientific American*, 259(5), 42-48.